

020732.173.645 (7495)

In the Claims

1. (Currently Amended) A hydrophobic chemical mechanical planarization (HCMP) pad comprising:
an organic polymer; and
a metal agent, wherein the metal agent includes at least one β -diketonate ligand,
wherein the metal agent includes one of cobalt, palladium, nickel, titanium, zirconium, hafnium, and copper, and wherein the pad is useful for planarizing a semiconductor wafer.
2. (Previously Presented) The HCMP pad of claim 1 wherein said organic polymer comprises one of a polyurethane or a polyether based material.
3. (Previously Presented) The HCMP pad of claim 1 wherein said organic polymer is formed of a polyol and di-isocyanate.
4. (Previously Presented) The HCMP pad of claim 1 wherein said organic polymer is reactive with one of a polyfunctional amine, a diamine, a triamine, a polyfunctional hydroxyl, and a mixed functionality hydroxylamine.
5. (Previously Presented) The HCMP pad of claim 1 further comprising a matrix material selected from the group consisting of a melamine, a polyester, a polysulfone, polyvinyl acetate, and a fluorinated hydrocarbon.
6. (Cancelled)

6. ✓ (Currently Amended) The HCMP pad of claim 1 wherein the HCMP pad further comprises pores
metal agent includes one of cobalt, palladium, nickel, zinc, titanium, zirconium, hafnium, and copper.

7. (Previously Presented) The HCMP pad of claim 1 wherein the metal agent includes a side group selected from hydrogen, an aryl, a perfluoraryl, an alkyl, a perfluoroalkyl, and a t-butyl group.

8. (Previously Presented) The HCMP pad of claim 1 wherein a metal feature on the semiconductor wafer is isolated during planarization.

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9 10. (Previously Presented) The HCMP pad of claim 1 wherein said metal agent includes a metal compatible with a metal of the metal feature.

10 11. (Previously Presented) The HCMP pad of claim 1, wherein said pad substantially retains a planarization characteristic during the planarization.

11 12. (Previously Presented) The HCMP pad of claim 11 wherein the planarization characteristic is one of shearing, hardness, wearing, cross-linking, water uptake and electrical character.

12 13. (Previously Presented) The HCMP pad of claim 1, wherein said pad substantially avoids uptake of aqueous slurry during the planarization.

14-17. (Cancelled)

16 18. (Withdrawn) A method comprising mixing an organic polymer and a metal agent to form a chemical mechanical planarization (CMP) pad, wherein the metal agent includes at least one β -diketonate ligand, and wherein the metal agent includes one of cobalt, palladium, nickel, titanium, zirconium, hafnium, and copper.

17 19. (Withdrawn) The method of claim 18 further comprising:

adding a foaming agent and a curing agent to the CMP material;
reducing pressure around the CMP material; and
heating the CMP material.

18 20. (Withdrawn) The method of claim 19 further comprising obtaining a hydrophobic CMP pad from a log formed of the CMP material.

19 21. (Withdrawn) A method of fabricating a semiconductor device, said method comprising:
providing a hydrophobic chemical mechanical planarization (HCMP) pad according to claim 1;
and
planarizing the semiconductor device with the HCMP pad during the fabrication of said device.

20 22. (Withdrawn) The method of claim 21 wherein the planarizing further comprises:
delivering an aqueous slurry to a surface of the HCMP pad;

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moving the HCMP pad in a first direction; and
moving the semiconductor device in a second direction different from the first direction.

C 23. (Withdrawn) A method of forming a chemical mechanical planarization (CMP) material said method comprising mixing components to form the CMP material wherein the CMP mixture comprises an organic polymer and a metal agent dissolved in an organic solvent, wherein the metal agent includes one of cobalt, palladium, nickel, titanium, zirconium, hafnium, and copper.

C 24. (Withdrawn) The method of claim 23 further comprising:
adding a foaming agent and a curing agent to the CMP material;
reducing pressure around the CMP material; and
heating the CMP material.

C 25. (Withdrawn) The method of claim 24 further comprising obtaining a hydrophobic CMP pad from a log formed of the CMP material.

26. (Cancelled)

13 27. (Previously Presented) The HCMP pad of claim 1 wherein said organic polymer comprises a urethane.

21 28. (Withdrawn) The method of claim 18, wherein the metal agent is dissolved in an organic solvent.

22 29. (Withdrawn) The method of claim 18, wherein the HCMP pad further comprises pores metal agent includes one of cobalt, palladium, nickel, zinc, titanium, zirconium, hafnium, and copper.

23 30. (Withdrawn) The method of claim 18, wherein the metal agent includes a side group selected from hydrogen, an aryl, a perfluoraryl, an alkyl, a perfluoroalkyl, and a t-butyl group.

24 31. (Withdrawn) The method of claim 18, wherein the metal agent further includes at least one additional ligand comprising the formula -OR, wherein R is selected from the group consisting of hydrogen, an aryl, an alkyl, a perfluoraryl, a perfluoroalkyl, and combinations thereof.

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14 32. (Currently Amended) The method of claim 23, wherein the metal agent includes one of cobalt, palladium, nickel, zinc, titanium, zirconium, hafnium, and copper The HCMP pad of claim 1 wherein the metal agent includes a side group selected from an aryl, a perfluoraryl, an alkyl, a perfluoroalkyl, and a t-butyl group.

C 33. (Withdrawn) The method of claim 23, wherein the metal agent includes a β -diketonate ligand having a side group selected from the group consisting of t-butyl and perfluoroalkyl.

15 34. (Previously Presented) The HCMP pad of claim 1 wherein the metal agent further includes at least one additional ligand comprising the formula -OR, wherein R is selected from the group consisting of hydrogen, an aryl, an alkyl, a perfluoraryl, a perfluoroalkyl, and combinations thereof.